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TYPE I PROGRESS REPORT, NO. 5

Investigation of Application of
ERTS-A Data to Integrated
State Planning in Maryland

GSFC ID: ST 352

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OF ERTS-A DATA TO INTEGRATED STATE
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TYPE I PROGRESS REPORT

For Period Ending July 31, 1973

TITLE: Investigation of Application of ERTS-1 Data to Integrated State Planning in Maryland, MMC 261

GSFC ID: ST 352

A. Objective

The objective of this project is to evaluate the utility of satellite and aircraft remotely sensed data to integrated state planning. To achieve this objective, remotely sensed data are being evaluated for their applicability to land use inventory, land capability evaluation and land use suitability in the State of Maryland. Remotely sensed data is being integrated with other data to consider its applicability in the framework of state planning objectives.

B. Summary of Work Performed

The accomplishment of several objectives have moved forward the efficient completion of this investigation since the last report. The following discussion summarizes these activities.

1. A revised land use inventory of Deep Creek Reservoir and vicinity, Garrett County, has been completed using winter season underflight imagery. This inventory substantially refined and updated previous inventories; a report documenting techniques and results was prepared.

2. Two missions of ERTS underflight photography, acquired in April and June, 1973, were received. These were indexed and evaluated, and reproducible maps were prepared to update the Maryland catalogue of aerial photography which is used both for the current investigation and by the Department of State Planning. The April photography will be of less utility than other missions due to noticeable improper color balances in the images.

3. Efforts continue in the collection and preparation of source data for digitization in the geo-base computer analysis for capability/suitability. Approximately 40 percent of the map series has been digitized, edited, and printed on data maps; several of the data maps were reviewed by the Governor during the past month. The results of the geo-base analysis will provide a uniform data base to which ERTS imagery can effectively be compared and evaluated.

4. The Department of State Planning recently briefed the Governor on the project and land use planning progress. After reviewing ERTS and aircraft imagery and a variety of the materials used in the geo-base analysis, the Governor initiated efforts to further disseminate data and investigation results to additional user groups in the State. The Governor also directed that an ERTS color mosaic of Maryland be produced and disseminated to sub-state jurisdictions. In addition, on July 26, the Department of State Planning reported on activities, which include this project, to the Maryland Commission on Intergovernmental Relations in Land Use Regulation; this is a joint executive-legislative-citizens group charged by the Governor to study and prepare land use legislation.

5. Most efforts previously undertaken on this project have utilized black and white, single band ERTS-1 imagery and black and white enlargements. Recently efforts have been initiated to place greater emphasis on color products, both multiband and multidate color combinations, for extrapolating land use and related environmental data of interest to the State Planning community. The following progress has been made:

(a) The use of dia²chrome color combinations have been made to calibrate the process and determine optimal color selections.

(b) An additive color viewer (ADDCOL) has been utilized to produce color combinations of several ERTS scenes and to investigate several color enhanced phenomena. On a January 9, 1973 image (E-1170-15183), for example, it was noted that maintained and improved open spaces with grass cover produced unique color signatures. When supported by underflight photography, these areas consisted primarily of golf courses (81% in urban areas, and 17% in rural areas) and agricultural land uses (83% in rural areas and 10% in urban fringe areas). Also, it was possible to stratify the urban/rural areas on the ERTS color combined image.

(c) Investigations of color ERTS products will continue and will concentrate on areas within the scenes covering the Washington-Baltimore corridor. All ERTS imagery received to date has been re-evaluated to select those scenes of several seasons which have the best image characteristics for color combining and reproduction. For each of these, 70mm film positives have been produced for ADDCOL viewing and enhancement; future efforts will utilize additional color techniques where applicable to the investigations.

6. Multidate underflight photography is being interpreted for urban land use change and conversion to urban use. These studies have addressed specific areas around Columbia and Laurel/Bowie. The results will provide a data base for similar analysis of multidate ERTS investigations in the next reporting periods.

7. The Department of State Planning and EarthSat recently reviewed project progress and status and determined those areas of the investigation which should receive concentrated attention during the remainder of the project. A revision of tasks for the remaining effort reflects this evaluation. Areas of concentration include:

(a) Evaluation of ERTS image and comparison to digital geo-base for analyzing land use capability and suitability;

(b) Formulate state planning goals based on results of the investigation;

(c) Review State land use plans in terms of the investigation results; and

(d) Continue concentrated evaluation of appropriate ERTS data for land use and related resource information of interest to state planning needs.

C. Work Schedule

To date, work progress has been completed in accordance with scheduled tasks.

D. Project Reliability

The high quality of supporting data on capability/suitability now being collected and digitized, and excellent underflight photography collected seasonally (with the noted exception of color balance problems in April, 1973), will insure that a high quality, consistent evaluation base for comparison with ERTS data will be available for Maryland.

E. Adequacy of Funds

Adequate in light of recent task revisions which concentrate remaining efforts on specific evaluations of ERTS imagery.

F. Personnel Changes

None.